B.V. SKVORTZOV* and Mitsuzo NODA**: On colourless flagellata of genus *Entosiphon* Stein, Fam. Peranemaceae, Euglenophyta collected in São Paulo, Brasil, South America

ビー.ブイ. スクボルツォフ*・野田光蔵**: 南米ブラジル São Paulo 産の無色鞭毛藻 *Entosiphon* 属 (Peranemaceae, Euglenophyta) の種類

Genus *Entosiphon* was proposed by German protologist Stein in 1878. This genus is distinguishable from genus *Anisonema* Dujardin by its narrowly conical "Siphon" extending to the entire length of the cell, or is seen only in the upper part of the body. The cells are rigid, spherical or subspherical, broad elliptical or elliptical, short or long fusiform, and depressed with hyaline or longitudinally undulate or striate membrane; two flagella are inserted in the base of the reservoir and extending through the neck of the gullet, one flagellum is swimming, another trailing, in moving state, "Siphon" makes movement forward; contractive vacuoles are several; nucleus large. Nutrition saprophytic and holozoic. Habitat of this flagellate—mountain bogs, swamps, streams. Distribution of this genus—cosmopolitan.

Material and methods The flagellate described were collected by B.V. Skvortzov around São Paulo, Brasil, almost in bogs, swamps, streams. Samples collected were cultivated for several days in Petri dishes in Cryptogamic Laboratory of Botanical Institute in São Paulo and then preserved in herbarium of the Institute. Herewith are given some abbreviations used in the present paper: "Siphon" or pharyngeal rod apparatus—phar. r. app.; São Paulo—S.P.; B.V. Skvortzov—B.S. Here are given the localities of São Paulo, where *Entosiphon* was collected (in Latin).

1. S. P. lacu artificialis Eldorado, inter plantas aquaticis in parte litoralis. lg. B. S. 6, 5. '65.
2. S. P. prope Cipo, in stagnis montanis cum *Sphagnum* sp. lg. V. Alin, 20, 6. '65.
3. S. P. prope rivulis Pinheriros in stagnis cum *Salvinia auriculata*. lg. Prof. C. Lima et B. S. 18, 6. '63.
4. Estado de S. P., prope Rio Bonito, inter *Salvinia auriculata*. lg. V. Alin et B. S. 9, 5. '63.

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5. Estado de S. P., prope Ubatuba, Macaguassu in *Chara* sp. lagoon. lg. Prof. Daniel M. Vital. 8-9, 7. '63; 21, 5. '65.
6. S. P. prope S. Awaro, in stagnis montanis. lg. V. Alin, 25, 4. '63.
7. S. P. Rio Tamatuabe in fossa cum aqua impura. lg. B. S. 10, 4. '66.
8. S. P. Parque de Estado do S. P., in stagnis permanentis montanis, inter *Utricularia* sp. lg. B. S. 26, 11. '62.
9. Estado de S. P., montanis Serra de Mar, in muscis epiphyticis. lg. B. S. 13, 7. '63.
10. S. P. Parque do Estado de S. P., in lacu artificialis montanis inter *Vallisneria spiralis* L. et *Salvinia auriculata.* lg. B. S. 23, 1. '63; 28-30, 12. '64; 8, 6. '65.
11. S. P. Parque do Estado de S. P., in stagnis temporaria, lg. B. S. 7, 8. '65; 14, 12. '65.
12. S. P. prope Cipo, in stagnis inter *Salvinia auriculata.* lg. V. Alin, 14, 4. '66.
13. Estado do S. P. prope Emas, inter *Mayaca* sp. lg. B. S. 15, 11. '64.
14. S. P. Cryptog. Laboratory, in cultures. lg. Prof. Adauto Malinez, 15, 4. '63.
15. S. P. in lacu artificialis cum *Typha domblinensis* Pers. prope Avenida Washington Liriz. lg. B. S. 23, 5. '65.
16. S. P. valle fl. Pinheiros in fossa cum aqua impura. lg. B. S. 26, 1. '63.
17. S. P. in Aqua Branco, in lacu cum plantas. lg. B. S. 11, 3. '63.
18. S. P. in merdae equi in cultura. lg. B. S. 8, 1. '63.

The type specimens are preserved in Herbarium of Cryptogamical Section of Botanical Institute in São Paulo, Brasil.

Key to the species in English with short diagnosis in Latin

I. Cells almost round or semiround

A. Cells almost round

1. Membrane hyaline

a. Phar. r. app. almost as long as the cell

1. **Entosiphon subrotundatum** sp. nov. Fig. 1

Cellula fere rotundata, 30×25 micr.; phar. r. app. distinctus, cellulae longiora; flagellae cellulae longitudine 1-1/2-plo longiore, differt de *E. rotundatum* Skv. (1957. **86**: 185, pl. 5 f. 8) in cellulae fere rotundatis, hyalinis et phar. r. app. longior. Hab. 1.

b. Phar. r. app. short

2. **Entosiphon saopaulensis** sp. nov. Figs. 2, 3

Cellula in fronte visa semirotundata vel late ellipsoidea, 15-18-55×10-

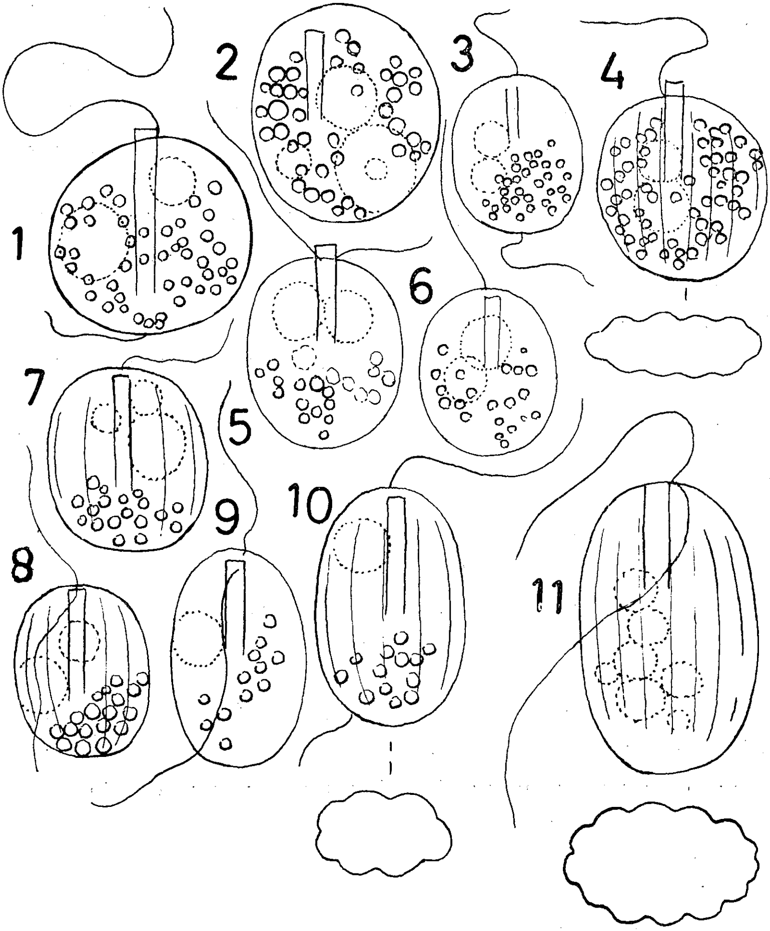

Fig. 1. *Entosiphon subrotundatum* 2-3. *E. saopauloensis* 4. *E. limae* 5-6. *E. danielii* 7. *E. utriculariae* 8. *E. rotundatum* 9. *E. ellipticum* 10. *E. milanezii* 11. *E. longistriatum*

15-48 micr. in latere visae multo depressa; membrana hyalina. Hab. 2.

2. Membrane longitudinally striate, striations 10-20 around the cell.

3. **Entosiphon limae** sp. nov. Fig. 4

Cellula in fronte visa fere sphaerica, 33×33 micr., striis 10-12 circum cellulae in numero; cellula in latere visae multo depressa. Dedicavi hoc species in honorem Dom. Prof. Celso P. de Lima, biologista, São Paulo.

Hab. 3.

B. Cells semiround or short ellipsoid

1. Membrane hyaline

4. **Entosiphon danielii** sp. nov. Figs. 5, 6

Cellula brevi ellipsoidea, 15-18-22.5-33×11-14-26 micr. cum membrana hyalina et phar. r. app. cellulae longitudinae 1/2-plo longiore; flagellum natantes fere cellulae longior, flagella trachendi longior. Dedicavi hoc species in honorem Dom. Prof. Daniel M. Vital, biologista, São Paulo. Hab. 4, 5, 6, 7

2. Membrane longitudinally striate

a. 8 striations around the cell

5. **Entosiphon utriculariae** sp. nov. Fig. 7

Cellula brevi-ellipsoidea, 19-29×15-17 micr., striis longitudinis circum cellulae 8 in numero; phar. r. app. 1/2 cellulae longiore, brevior et striis longitudinalis latior quam in *E. rotundatum* Skv. (1957). Hab. 5, 8

b. 12 striations around the cell

6. **Entosiphon rotundatum** Skvortzov Fig. 8

Phil. Journ. Sci. **186**: 185 pl. 5 fig. 8 (1957). Cellula late elliptica, 30×18 micr. cum striis longitudinalis 12 circa cellulae latere visa depressa. Hab. 5

II. Cells ellipsoid with both ends more or less apical round or in anterior part more or less truncate

1. Membrane hyaline

7. **Entosiphon ellipticum** sp. nov. Fig. 9

Cellulae ellipticae cum apicibus late rotundatis, 15-18-22-26×9-11-15 micr. phar. r. app. ad medium cellulae positus. Hab. 3, 5, 9, 10, 12, 18

2. Membrane longitudinally striate

a. Striation 7-8 around the cell

8. **Entosiphon milanezii** sp. nov. Fig. 10

Cellula ellipsoidea parte anteriore plusminusque truncata, 15-30×9-15 micr., latere visa late ovaliae. Hab. 1

b. Striation 12-14 around the cell

9. **Entosiphon longistriatum** sp. nov. Fig. 11

Cellulae ellipticae cum apicibus late rotundatis, 22-26-30-55×9-15-18-29 micr.; striis longitudinalis distinctis. Hab. 5, 9, 10, 13, 14, 15, 16, 17

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著者らは南米ブラジル São Paulo 産の無色鞭毛藻 *Entosiphon* (Peranemaceae, Euglenophyta) の9種について記載した。そのうち8種は新種，他の1種は哈爾賓から初めて記載の *E. rotundatum* Skvortzov (1957) である。

○台湾・琉球の植物補遺 (2) (山崎　敬) Takasi YAMAZAKI : Supplement of the flora of Ryukyu and Formosa (2)

4. **Cynanchum lanhsuense** 琉球，台湾，フィリッピン，中国南部には Cynanchum 節にぞくす一群の種類がある。このうち琉球の *C. liukiuense* と，台湾の *C. formosanum* とは葉の形がことなるが花の構造には大差がない。台湾のタロコから報告された *C. crassifolium* も，果実のもので書かれているが近縁のものであろう。多くの資料を集めて検討する必要がある。紅頭嶼のものは *C. formosanum* としてあつかわれていたが，副花冠が大きくて蕊柱の2倍あり，雄蕊の先端の附属物は広卵形でとがっている点で，副花冠と蕊柱が同長で，雄蕊の附属物は広円形である *C. formosanum* とはことなる。これはフィリッピンのミンダナオ島にある *C. sulense* に近いが，記載文に比較してあるように，これとも異る新しいものと思われる。比較研究の資料として，*C. liukiuense* の標本を送って下さった初島住彦氏に感謝します。

Cynanchum lanhsuense Yamazaki sp. nov. (Sect. Cynanchum)

Caulis volubilis teres 2 mm diameter glaber. Folia opposita longi-petiolata, petiolis 2-3 cm longis, laminis subcarnosis ovalibus basi rotundatis apice acutis utrinque glabris 4-7 cm longis 3-4.5 cm latis. Inflorescentia racemoso-umbelliforma 10-30 florifera 2.5-3.5 cm longa, pedunculis glabris, pedicellis 3-5 mm longis pubescentibus. Calyx 5-partitus, lobis late ovatis acutis extus pubescentibus 1 mm longis